REMARKS

This responds to the Office Action mailed on December 13, 2005.

Claims 1 and 22 were amended. Claims 1-63 are now pending in this application.

§102 Rejection of the Claims

Claims 1-18, 22-31, 33-39, 41-58, and 62-63 were rejected under 35 U.S.C. § 102(b) for anticipation by Ndousse et al., "Computational Intelligence for Distributed Fault Management in Networks Using Fuzzy Cognitive Maps". This rejection is respectfully traversed, as the reference does not show each and every element of the invention as claimed. Claims 1 and 22 have been amended to indicate that the method is computer implemented. This is not a new limitation to the claim set, since claim 25 clearly identifies a programmed computer to implement essentially the same method claimed in claim 1. Thus, new issues are not raised, and a new search is not required in view of the amendment.

Ndousse et al., while introducing the concept of using FCMs to diagnose network faults, clearly describes that the FCMs are constructed by experts, not by a computer. This is illustrated by the fact that no computer implemented methodology for creating FCMs is disclosed, the fact that FIG.s 4 and 5 illustrated FCMs formed by two experts, and the text in the second column of page 1560, beginning at the heading "IV. Aggregation FCM" recites that the causal viewpoint of each expert leads to an FCM with different causal weights.

Claim 1 describes generating FCM fragments by computer. Specifically, claim 1 recites forming fuzzy cognitive maps (FCMs) including causally equivalent FCM fragments using network element interdependencies derived from a database. The corresponding text describing this element is found in the application at least on page 8 with reference to event analyzer 140.

Thus, claim 1 clearly distinguishes from Ndousse et al., in that the FCMs are computer generated. The Office Action cites page 1559, left col., lines 36-37 of Ndousse et al., as describing this feature. However, that language does not appear to describe the creation of the FCM fragments, but merely describes that "the FCM denote faulty managed objects or concepts, while the arcs denote fault propagation between managed objects or network fault concepts."

This is clearly not describing how to create an FCM, but only what it represents. Claim 1 describes how to create one. Still further, no mention in Ndousse et al., was found regarding the use of event notifications that convey the state of one or more managed objects to create FCM fragments as claimed.

Claim 1 further recites sampling generated incoming real-time events from the system. No mention of such sampling is found in the reference. The Office Action points to page 1558, left col., lines 5-8 of Ndousse et al., as describing this element. Such langauge, if referring to the abstract, indicates that "The dynamic features of FCM are exploited to characterize the time-varying aspects of network faults, while its graphical features are used as a framework for representing the distributed properties of fault propagation." No mention of sampling is found in this language. If the reference is to the Introduction, that recites: "Its essential features provide a rapid and intelligent solution to the following critical issues. – Diagnosis and location of the faulty components of the network." This language also fails to describe sampling.

Claims 2-18 depend from claim 1 and distinguish the reference for at least the same reasons. Applicant reserves the right to point out further distinctions in such claims at a later date.

Claim 2 describes the computer implemented method of forming FCM fragments as including the use of the database to determine event nodes, identifying concept nodes from the event nodes, and forming the fragments to include the concept and event nodes. The Office Action points to Ndousse et al., at page 1559, left col., lines 41-42, and page 1560, paragraph under Figure 5, as showing this claim. Applicant respectfully traverses this assertion. The cited language describes edges joining objects, and then indicates that the causal strength is based on the knowledge of network experts. This actually confirms the above premise that the FCM in Ndousse et al., is created by an expert, not by a computer system as claimed. Further, the language describes the content of an FCM, not how it is made as claimed. While including concept nodes, it lacks a description of identifying concept nodes from the event nodes as claimed.

Claims 20 and 21 also describe the use of real time events to evaluate the effect of the received events on identified concept nodes. This is a form of dynamically changing the FCM fragments with time and the discover of new concepts and events. This concept is not disclosed

in Ndousse et al., at the cited right column of page 1559. Since an expert is used in Ndousse et al. to create the FCM, it would require the expert to continuously monitor real time traffic and change the model on the fly. This is simply not taught or suggested.

Claim 22 is similar to claim 1 in that it also recites a computer implemented method of forming FCMs and sampling. As stated with respect to claim 1, the reference does not disclose these elements.

Claims 23-24 depend from claim 22 and distinguish the reference for at least the same reasons.

Claim 25 is similar to claim 1 expressed in computer readable medium format, and distinguishes the reference for at least the same reasons as does claim 1. Claims 26-31 depend from claim 25.

Claims 33-39 are similar to claim 1 and distinguish the reference for at least the same reasons.

Claims 41-58 and 62-63 contain recitations similar to claim 1 and also distinguish the reference for at least the same reasons. In addition, claim 41 specifically recites the event-analyzer that forms the FCM fragments. As mentioned above, Ndousse et al., requires the use of an expert to form the FCM, and no description is found of any device which can automatically form the FCM fragments as claimed. The claims specifically recite a methodology used to form the FCM fragments, while Ndousse et al., simply indicates what the FCM contains, and that it is created by an expert.

Claim 42 further recites that the analyzer forms FCM fragments by determining event nodes from events in the database, and by further identifying concept nodes from the determined event nodes to form FCM fragments including interdependencies between the identified concept nodes and the determined event nodes. The Office Action indicates that this element is described in Ndousse et al., at page 1559, left col., lines 41-42, and page 1560, paragraph under Figure 5. As indicated above, the language may identify what the FCM contains, but does not describe how to derive it as claimed.

Claim 43 further recites that the analyzer further maps the sampled events to the formed FCM fragments including determined event nodes to evaluate the effect of the mapped events on the determined concept nodes using the determined interdependencies, wherein the analyzer

identifies the problems by analyzing the concept nodes based on the outcome of the evaluation and further diagnoses the problems based on the outcome of the analysis. The Office Action indicates this element is found in the Ndousse et al., at page 1559, Figure 2. This assertion is respectfully traversed.

§103 Rejection of the Claims

Claims 19-21, 32, 40, and 59-61 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ndousse as applied to claims 1-18, 22-31, 33-39, 41-58, and 62-63 above, in view of Zhi-Qiang Liu et al., "Contextual Fuzzy Cognitive Map for Decision Support in Geographic Information Systems", and further in view of Thierry Marchant, "Cognitive Maps and Fuzzy Implications." This rejection is respectfully traversed. Each of the claims depend from a claim that is believed allowable in view of arguments made above, and as such, should also be allowed.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6972 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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This paper or fee is being filed on the date indicated above, using the USPTO's electronic filing system EFS-Web, and is addressed to: MS AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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